

**ABSTRACT OF THE DISCLOSURE**

An optical inspection system and method for inspecting a component on a printed circuit board (PCB) which determines three-dimensional information in a single scan. A first visual light source illuminates the PCB surface and component with a green light while a second visual light source illuminates the PCB and component with a blue light. At least one laser light source simultaneously illuminates the surface of the PCB with a narrow coherent red-light laser beam. The laser light source is mounted off vertical on a movable mount which enables the laser beam to be directed over an area of interest on the surface of the PCB. The system also includes a color scan camera mounted vertically above the PCB. The camera has red, green, and blue channels. The green and blue channels capture an image of the illuminated surface of the PCB which is used by a computer to determine two-dimensional information about the component. The red channel captures a path of the laser beam as it strikes the surface of the PCB and the component. The computer uses the path to determine height information for the component.